

supplying a source of pressurized air simultaneously to said pressure cylinders whereby feet of said pressure cylinders simultaneously extends to apply a force against said components for a duration of time sufficient to bond an adhesive coated component to said circuit board.

REMARKS

Withdrawal of the objection to the Abstract is requested. A new Abstract is enclosed avoiding the objection thereto.

Withdrawal of the rejection of the claims under 35 U.S.C. § 112, is requested. Claims 12 and 13 have been amended to avoid the concern raised in the Office Action.

Withdrawal of the rejection of claims 11-15 under 35 U.S.C. § 102(b) as being anticipated by Lape (U.S. Pat. No. 5,093,984), is requested. The invention as exemplified by amended claim 11 is directed to a method for applying bonding pressure to a circuit board component. The circuit board component, such as a heat sink, may have an adhesive coating which provides a bond between the component and another component, or to the circuit board itself. The method includes the steps of using first, second and third pressure cylinders which are disposed along first and second axes. The pressure cylinders are positioned so that extendable feet force under air pressure components bearing an adhesive against a surface to which the component is bonded. The cylinders are supplied with pressurized air to force the pressure cylinder feet against the components for a duration of time sufficient to bond the adhesive coated component to the circuit board, or to a component of the circuit board.

The cited reference to Lape (U.S. Pat. No. 5,093,984) describes a system for loading an unloading circuit components to a burn-in test fixture. Components to be burned-in are loaded on a tray which are individually loaded into sockets for doing the burn-in process. As shown in particular to Figs. 14A-14C, a cylinder head forces the socket contacts open, so that the part to be burned-in may be deposited by operating another piston. The system includes load/unload plant head systems 200A and 200B for placing and removing the components from the sockets.

In reviewing the reference, it is not seen where there are three air cylinders on two difference axes as required by the process of the present invention. It appears that 200A and 200B of Lape (U.S. Pat. No. 5,093,984) all move along the same direction, on essentially the

same axes.

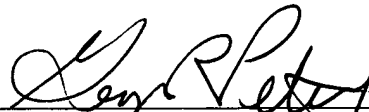
2 (Additionally, the source of pressurized air is applied simultaneously in accordance with rejected claim 1 to the first, second and third cylinders for simultaneously applying pressure to simultaneously extend the feet against the components, which is not disclosed in Lape (U.S. Pat. No. 5,093,984). Further, there is no indication that any method of Lape applies a force to the components for a duration of time sufficient to bond an adhesive coated component to a circuit board as required by the rejected claims.

Accordingly, without the foregoing method steps, it is not possible for Lape (U.S. Pat. No. 5,093,984) to anticipate or render obvious the subject matter of the present application.

In view of the foregoing, favorable reconsideration is requested.

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Respectfully submitted,

By 

George R. Pettit, Reg. No. 27,369
CONNOLLY BOVE LODGE & HUTZ LLP
1990 M Street, N.W., Suite 800
Washington, DC 20036-3425
(202) 331-7111
(202) 293-6229 (Fax)
Attorneys for Applicant

MARKED-UP REVISIONS

IN THE CLAIMS:

11. (Amended) A method for applying a bonding pressure to circuit board components being bonded to a circuit board comprising:

supporting first, second and third pressure cylinders over components on said circuit board along one of first and second axes, each of said pressure cylinders having foot which extends under air pressure against said components; and

supplying a source of pressurized air simultaneously to said pressure cylinders whereby [a] feet of said pressure cylinders simultaneously extends to apply a force against said components for a duration of time sufficient to bond an adhesive coated component to said circuit board.

ABSTRACT OF THE DISCLOSURE

A method for applying pressure to circuit components during a manufacturing operation.

B² The method utilizes a plurality of compressed air pressure cylinders which are supported on a plurality of horizontal arms along different axes over a circuit board. Compressed air is supplied simultaneously to each of the cylinders, and the cylinders force the component onto a bonding position on the circuit board. The method permits heat sinks to be pressed against components located on the circuit board to bond the heat sinks to the components.
